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Jiandong Huang

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HONEYWELL INTERNATIONAL INC.
PATENT SERVICES
101 COLUMBIA ROAD
P O BOX 2245
MORRISTOWN, NJ 07962-2245

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JIANDONG HUANG, SEJUN SONG, TONY J. KOZLIK,
RONALD J. FREIMARK, and JAY W. GUSTIN

Appeal 2009-004874
Application 09/513,010
Technology Center 2100

Decided: December 31, 2009

Before JAY P. LUCAS, CAROLYN D. THOMAS, and
DEBRA K. STEPHENS, *Administrative Patent Judges*.

STEPHENS, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) (2002) from a final rejection of claims 1-10 and 31-52. We have jurisdiction under 35 U.S.C. § 6(b) (2008).

We AFFIRM.

Introduction

According to Appellants, the invention is a system and method for providing a fault-tolerant network having a redundant connection to network nodes able to detect and recover from multiple network faults. (Spec. 1).

STATEMENT OF THE CASE

Exemplary Claim(s)

Claims 1 is an exemplary claim and is reproduced below:

1. A method of managing the state of a computer network with at least three linked networked nodes, where each of the at least three networked nodes has redundant network connections, comprising:

determining the state of a primary network connection between each pair of the at least three networked nodes;

determining the state of a redundant network connection between each pair of the at least three networked nodes; and

selecting either the primary network connection or the redundant network connection, but not both, for sending and receiving data between each pair of networked nodes, such that the network path selected to be used to communicate between each pair is selected independently based on the determined network states for each pair of the at least three networked nodes; and

wherein at least one of the at least three networked nodes is operable to selectively forward data, where the data is forwarded to a different one of the at least three networked nodes than the node from which the data is received.

Prior Art

Kohno	5,153,874	Oct. 6, 1992
Horn	6,192,414 B1	Feb. 20, 2001
Momona	6,434,117 B1	Aug. 13, 2002

Rejections

Claims 1-10 and 31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kohno, Horn, and Momona.

Claims 32-52 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kohno and Momona.

GROUPING OF CLAIMS

(1) Appellants argue claims 1-10 and 31 as a group based on arguments set forth for claim 1 (App. Br. 9). We therefore treat claims 2-10 and 31 as standing or falling with representative claim 1.

(2) Appellants argue claims 32-52 as a group based on arguments set forth for claim 32 (*id.* at 12).¹ We therefore treat claims 33-52 as standing or falling with representative claim 32.

We accept Appellants' grouping of the claims. *See* 37 C.F.R. § 41.37(c)(1)(vii).

¹ Though the heading for this section on page 12 of the Appeal Brief includes claim 31, we view this as a typographical error as the paragraph addresses claims 32-52 but not claim 31.

ISSUES 1 and 2

35 U.S.C. § 103(a): claims 1-10, 31

Issue 1:

Appellants contend Kohno teaches away from the present invention by using repeaters and thus, Kohno does not teach using an “intelligent decision” to decide which link to use (App. Br. 11). Additionally, Appellants assert Horn teaches away from Kohno as Horn does not teach using repeaters or any other device between the endpoints in Horn’s point-to-point communication system (*id.*). Appellants further contend Momona does not teach a connection at all and thus, resembles neither the function nor purpose of Kohno and Horn (*id.*). Therefore, Appellants assert no motivation exists to combine the techniques of Horn and Momona into the system of Kohno.

The Examiner finds a person of ordinary skill in the art would have been motivated to modify Kohno’s system in which nodes reliably communicate with the technique of Horn which selectively transmits information via a chosen connection to transmit effectively and efficiently with reliable redundant network connections (Ans. 13). The Examiner further finds it would have been obvious to one of ordinary skill in the art at the time the invention was made to use Momona’s technique of using one or more intermediate nodes as a repeater in the system of Kohno to lessen distortion and eliminate or minimize repeaters between each node (*id.*).

Issue 1: Have Appellants shown the Examiner erred in finding (i) one of ordinary skill in the art would have been motivated to combine the

techniques of Horn and Momona into the system of Kohno and (ii) Kohno and Horn do not teach away from each other?

Issue 2:

Appellants contend that Kohno, Horn, and Momona, taken alone or in combination, do not teach “selecting either the primary network connection or the redundant network connection, but not both, for sending and receiving data between each pair of the networked nodes,” and independently selecting the path to be used based on the determined network states for each pair of the at least three networked nodes as recited in representative independent claim 1 on appeal. (App. Br. 9-10). Appellants assert that instead, Kohno always sends data over both network connections, using repeaters to monitor for faults (*id.* at 10). Additionally, Appellants assert Kohno receives a signal over both lines and determines its validity without any regard for the path (*id.*).

Appellants further contend Horn does not cure the deficiency (*id.*). Additionally, Appellants assert Momona does not teach selecting a connection that provides connection between two nodes by routing through an intermediate node (*id.* at 11). Moreover, Appellants contend neither Kohno nor Horn teaches or suggests a network or has networked nodes (*id.*).

The Examiner concludes that the plurality of network nodes disclosed in Kohno receive data either through a primary or redundant network connection but not both. (Ans. 15). Further the Examiner finds that the network paths for communication between the respective pairs of nodes in Kohno are selected independently. (*Id.*) The Examiner then finds Horn teaches determining the either/or, but not both feature since Horn teaches

determining availability of each network connection and selectively transmitting information via a chosen connection (Ans. 16).

The Examiner next finds Momona teaches using an intermediate node as a repeater and that at least one of the three network nodes may selectively forward data (*id.*).

Issue 2: Have Appellants shown the Examiner erred in concluding the combination of Kohno, Horn, and Momona teaches “selecting either the primary network connection or the redundant network connection, but not both, for sending and receiving data between each pair of the networked nodes, such that the network path selected to be used to communicate between each pair is selected independently based on the determined network states for each pair of the at least three networked nodes” as recited in representative independent claim 1?

FINDINGS OF FACT (FF)

We find as follows:

Appellants’ Invention

(1) Appellants’ invention seeks to provide a method and an apparatus to detect and manage the state of a network computers using redundant communication channels (Spec. 3: 16-17).

Kohno Reference

(2) Kohno teaches a method and system for redundant data transmission over a plurality of transmission lines (Abst.).

(3) A plurality of stations are connected through the transmission sites (col. 3, ll. 35-42 and Fig. 3). A station S1 receives signals transmitted from other stations S2 to S5 (*id.*).

Horn Reference

(4) Horn teaches a method and system for managing a communications network using multiple connections. (Abst.)

(5) A basic network 2 includes a plurality of nodes 4 such that each node is connected to each of the networks 6 (col. 4, ll. 38-44 and Fig.2).

(6) A manager monitors the network connections and determines whether each of the network connection is available (col. 3, ll. 55-57). The manager then transmits application program information “via a selected one of the network connections” (col. 3, ll. 57 -59).

Momona Reference

(7) Momona teaches a IEEE-1394 serial bus communication system on which multicast packets are transmitted over an assigned channel. (Col. 1, ll. 7-10).

(8) A typical system includes multiple nodes (10A- 10E) (col. 4, ll. 3-5 and Fig. 1). The nodes include a source node (*see e.g.*, 10A), a destination node (*see e.g.*, 10C), and an intermediate node (*see e.g.*, 10B) that functions as a repeater between the source node and the destination node (col. 4, ll. 6-9 and Fig. 1).

Microsoft Computer Dictionary

(9) A node is, in networking, “a device . . . that is connected to the network and is capable of communicating with other network devices.

Microsoft Computer Dictionary, 366 (5th ed. 2002).

PRINCIPLES OF LAW

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. *See In re Fine*, 837 F.2d 1071, 1073 (Fed. Cir. 1988). If the Examiner's burden is met, the burden then shifts to the Appellant to overcome the prima facie case with argument and/or evidence.

[A]n implicit motivation to combine exists not only when a suggestion may be gleaned from the prior art as a whole, but when the "improvement" is technology-independent and the combination of references results in a product or process that is more desirable, for example because it is stronger, cheaper, cleaner, faster, lighter, smaller, more durable, or more efficient. . . . In such situations, the proper question is whether the ordinary artisan possesses knowledge and skills rendering him *capable* of combining the prior art references.

DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co., 464 F.3d 1356, 1368 (Fed. Cir. 2006).

"A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant." *In re Kahn*, 441 F.3d 977, 990 (Fed. Cir. 2006) (quoting *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994)).

If the Examiner's proposed modification renders the prior art unsatisfactory for its intended purpose, the Examiner has failed to make a prima facie case of obviousness. *See In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984).

Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. *See In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992).

Discussing the question of obviousness of claimed subject matter involving a combination of known elements, *KSR Int'l v. Teleflex, Inc.*, 550 U.S. 398 (2007), explains:

When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill. *Sakraida* [*v. Ag Pro, Inc.*, 425 U.S. 273 (1976)] and *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57 (1969)] are illustrative—a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.

Id. at 417.

ANALYSIS

Issue 1:

First, Appellants have not defined node in their Specification and thus, we attribute the ordinary meaning to one skilled in the art to the term – a device connected to a network, capable of communicating to other devices (FF 9). In light of this definition, as previously set by the Board in its decision of January 14, 2005, we find one of ordinary skill in the art would have been motivated to combine the techniques of Momona into the system

of Kohno. Specifically, we find Kohno provides selecting a connection between a pair of nodes (FF 3) and Momona provides for transmission between a pair of nodes via intermediate nodes (FF 8).

We additionally find Horn teaches managing a communication networks that includes multiple nodes (FF 4 and FF 5). Horn, like Kohno and Momona, is directed to a communication network having a plurality of nodes. We are not persuaded by Appellants' arguments that neither Kohno nor Horn operates in a bus environment and that Momona does not consider redundant connections. All three references teach various techniques for improving transmissions amongst nodes. Thus, on the basis of the record, we find all three of the prior art references are within the same field and an ordinary artisan would have possessed the knowledge and skill rendering him capable of combining the three references in any combination. Accordingly, we find one of ordinary skill in the art would have been motivated to combine the techniques of Horn and Momona into the system of Kohno.

Appellants then argue that Kohno and Horn teach away from each other since Kohno uses repeaters while Horn does not use repeaters or any other devices between endpoints as it is a point-to-point communication system (App. Br. 11). However, Appellants have not provided any arguments or cited disclosure in either Kohno or Horn that would lead a person of ordinary skill, upon reading the reference to have been discouraged from combining the technique of Horn into the system of Kohno. Nor have Appellants shown that combining Horn's technique of selectively transmitting information over the chosen connection into the

system of Kohno would have rendered Kohno's system inoperable or unsatisfactory for its intended purpose.

Accordingly, we find one of ordinary skill in the art would have been motivated to combine Momona's technique using intermediate nodes and Horn's technique of selectively transmitting information over a chosen connection into the redundant data transmission network of Kohno. Further we find Kohno and Horn do not teach away from each other.

Issue 2:

Appellants' argument that Kohno does not select either the primary or secondary network connection, but not both, for transmitting data between nodes (App. Br. 10) is without merit. The Examiner relies on Horn for disclosing this limitation (Ans. 4). We find Horn teaches a manager that selects one of two connections for communicating data (FF 6). Since the communication is "via a selected one of the network connections" (FF 6), we find Horn teaches that either of the two connection is selected, but not both.

Appellants next contend that Horn does not disclose at least three networked nodes (App. Br. 11). However, Horn discloses a network including a plurality of nodes (FF 5).

Appellants' argument that Momona does not select a connection at all or a connection between two nodes through an intermediate node is also unpersuasive. Momona is cited by the Examiner (Ans. 5) and indeed teaches using an intermediate node as a repeater (FF 8).

Moreover, Appellants' arguments focus on the individual differences between the limitations of claim 1 and the teachings of the Kohno, Horn, and

Momona references. It is apparent, however, from the Examiner's line of reasoning in the Answer and the Final Rejection, that the basis for the obviousness rejection is the combination of the teachings of Kohno, Horn, and Momona. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986); *In re Keller*, 642 F.2d 413, 425 (CCPA 1981).

We further find that combining the techniques of Horn and Momona into the system of Kohno would not have been beyond the skill of an ordinary person skilled in the art. We additionally find improving Kohno to use the technique of Horn and Momona would have been a predictable use of prior art elements to provide a reliable and redundant network between nodes with lessened distortion.

We therefore find that the combination of Kohno, Horn, and Momona teaches "selecting either the primary network connection or the redundant network connection, but not both, for sending and receiving data between each pair of networked nodes, such that the network path selected to be used to communicate between each pair is selected independently based on the determined network states for each pair of the at least three networked nodes" as recited in claim 1. Since claims 2-10 and 31 depend directly or indirectly from claim 1 and were not separately argued, claims 2-10 and 31 fall with representative claim 1.

ISSUE 3

35 U.S.C. § 103(a): claims 32-52

Appellants assert their invention is not obvious over Kohno and Momona based on the same arguments presented for claims 1-10 and 31. (App. Br. 12). Appellants additionally contend that Kohno teaches away from Momona and from Appellants' invention as Kohno utilizes repeaters to locate faults, and lacks intermediate network nodes with a selective forwarding function. (*Id.*)

The Examiner concludes that claims 32 and 43 are distinct from claim 1 and thus are not properly argued on the same basis. The Examiner also contends that Kohno discloses “selecting either the primary network connection or the redundant network connection, but not both, for communication with each pair of at least two other network nodes” as it would be obvious to a person of ordinary skill in the art that for “a first node to communicate with a second node, the data must be received by the second node.” (Ans. 17).

Issue 3: Have Appellants shown the Examiner erred in concluding the combination of Kohno and Momona teaches “select either the primary network connection or the redundant network connection, but not both, for communication with each of the at least two other network nodes” as disclosed in independent claim 32?

ANALYSIS

As discussed above with respect to claim 1, we find Kohno does not teach away from Momona. We further find Kohno does not teach away

from Appellants' invention. Again, Appellants have not presented arguments or evidence to show how Kohno teaches away from using an intermediate network node with a selective forwarding function.

Appellants relied on arguments set forth for claim 1 to respond to the Examiner's rejection of claims 32-52 as being unpatentable over Kohno and Momona (App. Br. 12). Therefore, for the reasons set forth above with respect to claim 1, we find Kohno and Momona, taken together, teach "select either the primary network connection or the redundant network connection, but not both, for communication with each of the at least two other network nodes" as recited in claim 32 and recited with commensurate language in claim 43. Since claims 33-42 depend directly or indirectly from independent claim 32 and claims 44-52 depend directly or indirectly from independent claim 43 and were not argued separately, claims 33-42 and 44-52 are also found to be obvious over Kohno and Momona.

CONCLUSION

Based on the findings of facts and analysis above, we conclude Appellants have not shown the Examiner erred in finding (i) one of ordinary skill in the art would have been motivated to combine the techniques of Horn and Momona into the system of Kohno and (ii) Kohno and Horn do not teach away from each other. Additionally, Appellants have not shown the Examiner erred in concluding the combination of Kohno, Horn, and Momona teaches "selecting either the primary network connection or the redundant network connection but not both, for sending and receiving data between each pair of the networked nodes, such that the network path selected to be used to communicate between each pair is selected

independently based on the determined network states for each pair of the at least three networked nodes.” Accordingly, we conclude Appellants have not met the burden of showing the Examiner erred in rejecting claims 1-10 and 31 under 35 U.S.C. § 103(a) as being obvious over Kohno, Horn, and Momona.

Additionally, we conclude Appellants have not shown the Examiner erred in concluding the combination of Kohno and Momona teaches “select either the primary network connection or the redundant network connection, but not both, for communication with each of the at least two other network nodes.” Accordingly, we conclude Appellants have not met the burden of showing the Examiner erred in rejecting claims 32-52 under 35 U.S.C. § 103(a) as being obvious over Kohno and Momona.

DECISION

The Examiner’s rejection of claims 1-10 and 31 under 35 U.S.C. § 103(a) as being obvious over Kohno, Horn, and Momona is affirmed.

The Examiner’s rejection of claims 32-52 under 35 U.S.C. § 103(a) as being obvious over Kohno and Momona is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv) (2009).

AFFIRMED

msc/nhl

HONEYWELL INTERNATIONAL INC.
PATENT SERVICES
101 COLUMBIA ROAD
P O BOX 2245
MORRISTOWN NJ 07962-2245